



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,565	10/27/2003	Anurag Gupta	CPCM:0010/FLE (210546)	2433

7590 08/09/2007  
Michael G. Fletcher  
FLETCHER YODER  
P.O. Box 692289  
Houston, TX 77269-2289

EXAMINER

MERKLING, MATTHEW J

ART UNIT	PAPER NUMBER
----------	--------------

1764

MAIL DATE	DELIVERY MODE
-----------	---------------

08/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/694,565	<b>Applicant(s)</b> GUPTA ET AL.	
	<b>Examiner</b> Matthew J. Merkling	<b>Art Unit</b> 1764	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 July 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/27/03</u> . | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1764

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election of Group IA (claims 1-13) in the reply filed on 7/6/07 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

***Claims Analysis***

2. It is noted that claims 1-13 are recited as a "system" which does not clearly set forth which statutory category the invention belongs. As the Election/Restriction Requirement sent on 5/30/07 designates Group I (claims 1-13) as an apparatus, and no traversal of this designation was indicated, Group I will be examined as an apparatus and the appropriate principles for interpreting claims for that particular category of invention have been applied.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1764

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 6,165,418) in view of Hashizume et al. (US 6,789,617).

Regarding claims 1 and 11, Anderson discloses a polyolefin production system, comprising:

a polymerization loop slurry reactor (31) for producing polyethylene (col. 1 lines 15-18) from multiple monomers over a catalyst in a slurry (col. 1 lines 21-38); and

a temperature control system (see abstract) configured to control the temperature of a polymerization reactor (31), wherein the temperature control system comprises a

Art Unit: 1764

temperature control valve (40) disposed in a conduit of the temperature control system.

While Anderson discloses the need to vary flow rates of a cooling medium in order to control reaction temperatures (col. 3 lines 11-31), there is no mention of the temperature control valve having a bilinear flow characteristic.

Hashizume discloses a control valve that has the ability to accurately control high flow rates and low flow rates.

Hashizume teaches a control valve that has a 'multi' linear flow characteristic where the actuation of the rotational speed of the valve is decreased during periods of low flow in order to increase sensitivity of the actuator to process conditions (i.e. flow rate) and improve controllability of the valve (col. 2 lines 34-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add a bilinear characteristic (as in Hashizume) to the temperature control valve of Anderson in order to improve the flow control of the cooling medium.

Regarding claim 12, Anderson, as discussed in claim 1 above, further discloses a motive device (valve, 18), a

Art Unit: 1764

reactor inlet (11), a catalyst inlet (col. 1 lines 21-38), and a polymer slurry outlet (see Fig. 2).

6. Claims 1-10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arens et al. (US 3,676,653) in view of Hashizume et al. (US 6,789,617).

Regarding claims 1 and 5, Arens discloses a loop slurry polymerization production system (col. 1 lines 40-46), comprising:

a polymerization reactor (11); and

a temperature control system configured to control the temperature of a reaction mixture within the polymerization reactor (see abstract), wherein the temperature control system comprises a temperature control valve (23, 27) disposed in a conduit of the temperature control system (see Fig. 1).

While Arens discloses the need for fine control of low flow rates during the initial startup of the polymerization production system (col. 2 lines 29-53), there is no mention of said temperature control valve having a bilinear flow characteristic.

Hashizume discloses a control valve that has the ability to accurately control high flow rates and low flow rates.

Art Unit: 1764

Hashizume teaches a control valve that has a 'multi' linear flow characteristic where the actuation of the rotational speed of the valve is decreased during periods of low flow (as can be seen in Fig. 2 where the second linear portion of the graph corresponds to 30% of the open position of 100°) in order to increase sensitivity of the actuator to process conditions (i.e. flow rate) and improve controllability of the valve (col. 2 lines 34-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add a bilinear characteristic (as in Hashizume) to the temperature control valve of Arens in order to improve the flow control during periods of low flow rates.

Regarding limitations recited in claims 2-4 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115. Further, process limitations do not have a patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no

Art Unit: 1764

significance in determining patentability of the apparatus claim.

Regarding claims 6, 8, and 9 the source of various parameters for controlling the slave controllers is not considered to confer patentability to the claimed apparatus. These source limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115.

Regarding claim 7, Arens, as discussed in claim 1 above, further discloses multiple controllers (44, 46) in the temperature control system (col. 2 lines 1-28).

Regarding claim 10, Arens, as discussed in claim 1 above further discloses and illustrates a slave controller (46) is configured to operate temperature control valves ((23, 27), col. 2 lines 1-28).

Regarding claim 12, Arens, as discussed in claim 1 above, further discloses the polymerization reactor comprises a motive device (valve, 27), a reactant inlet (37), a catalyst inlet (34), and a polymer slurry outlet (40).

Regarding claim 13, Arens, as discussed in claim 1 above, further discloses the temperature control system comprises:

a reactor jacket (12) configured to interface with the polymerization reactor and to allow circulation (through



Art Unit: 1764

conduit 16) of a liquid within the reactor jackets (see Fig. 1);

heat exchangers (30 and 31) configured to remove heat from the liquid (col. 2 lines 1-28);

a pump (17) configured to circulate the liquid through the reactor jacket and the heat exchangers (see flow diagram in Fig. 1); and

a plurality of conduits connecting the reactor jacket, the heat exchangers, and the pump (see flow diagram in Fig. 1).

Art Unit: 1764

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*MJM*

MJM



**Glenn Caldarola**  
**Supervisory Patent Examiner**  
**Technology Center 1700**